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SECTION IV.—RIVERS AND FLOODS.

RIVERS AND FLOODS DURING JULY, 1917.

By ALFRED J. HENRY, Professor of Meteorology.

[Dated Washington, Aug. 27, 1917.]

The rainfall of July, 1917, was irregularly distributed as is usual at this season of the year. The total fall for the month was in excess of 10 inches over a considerable portion of North Carolina and also over a narrow strip along the coast of South Carolina and in northeastern Tennessee and southeastern Mississippi.

The rivers of the Carolinas were in moderate flood during the last decade of the month as shown in Table 1, and, while conditions at times were threatening, serious loss or damage did not occur.

The lower Mississippi, while in flood during the closing days of June, fell steadily during the month as may be seen from the hydrographs on Chart I (xlv—68).

Spring flood in the lower Colorado.—Owing to temperature conditions in the upper watershed, the tributaries of the Colorado were rather high on the first of the month but declined steadily thereafter. The lower Colorado crested at Topock, Ariz., on the 3d at a stage of 23.2 feet, or 9.2 feet above flood stage.

There was some loss to levees in the Palo Verde Valley, Riverside County, Cal., as a result of this flood.

The spring flood in the Columbia passed off without upward incidents.

A severe local rainstorm in the vicinity of Lansing, Iowa, and Victory, Wis., on the 21st and again on the following day caused a flood in Bad Axe River, with a heavy loss to railroads and crops.

Losses by floods in July, 1917.

District.	Tangible property: Bridges, highways, etc.	Crops.		Live stock: other property.	Suspension of business.
		Matured.	Prospective.		
North Carolina.....			\$5,000		
Mississippi.....			125,000		
California.....	\$5,000		40,000		\$20,000
Iowa and Wisconsin.....	100,000		50,000		
Maine *.....	150,000		25,000		25,000
Totals.....	255,000		245,000		45,000

* Mostly from breaking of dam on Cobbosseecontee River in June.

Hydrographs for typical points on several principal rivers are shown on Chart I. The stations selected for charting are Keokuk, St. Louis, Memphis, Vicksburg, and

New Orleans, on the Mississippi; Cincinnati and Cairo, on the Ohio; Nashville, on the Cumberland; Johnsonville, on the Tennessee; Kansas City, on the Missouri; Little Rock, on the Arkansas; and Shreveport, on the Red.

TABLE 1.—Floods in Atlantic coast and Great Lakes drainage during July, 1917.

River.	Station.	Flood stage.	Above flood stages—dates.		Crest.		
			From—	To—	Stage.	Date.	
<i>Atlantic.</i>							
		<i>Feet.</i>			<i>Feet.</i>		
Roanoke.....	Weldon, N. C.....	30			27.4	28	
Tar.....	Tarboro, N. C.....	18	29	(1)	19.6	30	
Do.....	Greenville, N. C.....	13	27	(1)	14.6	31	
Fishing Creek.....	Enfield, N. C.....	14	26	28	14.3	27, 28	
Neuse.....	Neuse, N. C.....	14	24	24	14.1	24	
Do.....	Smithfield, N. C.....	13	24	27	14.7	25, 26	
Cape Fear.....	Elizabethton, N. C.....	22	22	25	25.1	23	
Santee.....	Rimini, S. C.....	12	21	29	13.0	24-27	
Do.....	Ferguson, S. C.....	12	23	26	12.3	24, 25	
Wateree.....	Camden, S. C.....	24	28	29	12.9	28	
					23.4	22	
<i>Great Lakes.</i>							
Maumee.....	Fort Wayne, Ind.....	15			14.2	7	

¹ Continued into August.

TABLE 2.—Floods in Mississippi River and tributaries, July, 1917.

River.	Station.	Flood stage.	Above flood stages—dates.		Crest.		
			From—	To—	Stage.	Date.	
<i>Mississippi proper.</i>							
		<i>Feet.</i>			<i>Feet.</i>		
Mississippi.....	Arkansas City, Ark.....	42	(1)	3	46.6	27	
Do.....	Greenville, Miss.....	42	.....	.....	37.9	1
Do.....	Vicksburg, Miss.....	45	.....	.....	43.7	1
Do.....	Natchez, Miss.....	46	.....	.....	42.5	2-5
<i>Eastern tributaries.</i>							
Scioto.....	Circleville, Ohio.....	7	15	16	11.5	15	
Do.....	Chillicothe, Ohio.....	14	.....	.....	13.2	16
Tennessee.....	Knoxville, Tenn.....	12	.....	.....	11.0	16
Illinois.....	Peru, Ill.....	14	.....	.....	12.8	1
Do.....	Peoria, Ill.....	16	.....	.....	14.7	1, 2
Do.....	Beardstown, Ill.....	12	(1)	12	19.1	17	
Do.....	Pearl, Ill.....	12	(1)	5	18.2	15, 17	
<i>Western tributaries.</i>							
Missouri.....	Running Water, S. Dak.....	16	.....	.....	14.6	1-3
Do.....	Blair, Nebr.....	15	.....	.....	14.6	1
Do.....	St. Joseph, Mo.....	12	.....	.....	11.3	2, 7, 8, 9
Do.....	Kansas City, Mo.....	22	(1)	.....	20.3	1
Grand.....	Brunswick, Mo.....	10	(1)	10	11.3	30	

¹ Continued from June.² June.

TABLE 3.—Floods in Pacific coast drainage during July, 1917.

River.	Station.	Flood stage.	Above flood stages—dates.		Crest.		
			From—	To—	Stage.	Date.	
<i>Colorado Basin.</i>							
Colorado.....	Topock, Ariz.....	<i>Feet.</i> 14	(1)	11	<i>Feet.</i> 23.2	3	
Do.....	Parker, Ariz.....	10	(1)	-----	9.8	1, 4	
Green.....	Green River, Wyo.....	9	(1)	15	11.4	* 28, 29	
Do.....	Elgin, Utah.....	13	(1)	9	17.5	* 27	
<i>Columbia Basin.</i>							
Columbia.....	Marcus, Wash.....	24	(1)	23	30.0	* 23-25	
Do.....	Wenatchee, Wash.....	40	(1)	-----	39.2	1	
Do.....	The Dalles, Oreg.....	40	(1)	-----	36.7	1	
Do.....	Vancouver, Wash.....	15	(1)	23	24.5	* 23	
Pend Oreille.....	Newport, Wash.....	16	(1)	13	21.6	* 25-27	
Willamette.....	Portland, Oreg.....	15	(1)	22	23.8	* 22	

* Continued from June.

* June.

MEAN LAKE LEVELS DURING JULY, 1917.

By UNITED STATES LAKE SURVEY.

[Dated: Detroit, Mich., Aug. 4, 1917.]

The following data are reported in the "Notice to Mariners" of the above date.

Data.	Lakes.*			
	Superior.	Michigan and Huron.	Erie.	Ontario.
Mean level during July, 1917:	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>	<i>Feet.</i>
Above mean sealevel at New York	602.05	581.95	573.86	247.46
Above or below—				
Mean stage of June, 1917	+0.05	+0.42	+0.42	+0.48
Mean stage of July, 1916	-0.95	+0.77	+0.64	-0.47
Average stage for July, last 10 years	+0.17	+1.11	+1.06	+0.55
Highest recorded July stage	-1.17	-1.63	-0.55	-1.26
Lowest recorded July stage	+1.17	+2.05	+2.40	+2.87
Average relation of the July level to—				
June level	+0.2	+0.1	-0.1	-0.1
August level	-0.2	±0.0	+0.2	+0.3

* Lake St. Clair's level: In July, 576.72 feet.